

DETAILED FIELD AND LABORATORY STUDIES ON THE ORIGIN AND OCCURRENCE OF WYOMING BENTONITES

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ABSTRACT

Bentonites having an areal extent of about 40,000 square miles in central and north-central Wyoming were examined and sampled at measured sections in the Mowry and Lower Frontier formations. The mineral assemblage of each bentonite was determined by examining the sand, silt and clay fractions using microscopic and X-ray methods. As a result each major bentonite revealed a characteristic mineral assemblage permitting correlation over a large area, and by extrapolation the composition of the parent volcanic material could be deduced.

The Wyoming bentonite beds show similar distribution patterns with each horizon consisting of coalescing lobes. Evidence is presented to indicate that the parent material of the bentonite was transported to the site of distribution principally by wind, although there is evidence of some water transport particularly in the upper beds. A mechanism of development of the lobate form for the ash-bentonite deposits is proposed on a basis of aerodynamics.